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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,287	12/11/2001	Andrew Cheng	2477	8054

7590 09/25/2002  
Andrew Cheng  
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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT PAPER NUMBER

2827

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/020,287

Applicant(s)

CHENG, ANDREW

Examiner

Ishwar (I. B.) Patel

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 3,4 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-8, drawn to a heat distributor, classified in class 174, subclass 252.
  - II. Claims 9, drawn to a method of providing homogeneous heat transfer among soldering pre-forms, classified in class 29, subclass 840.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make other and materially different product such as the method can be used to isolate the connector from the circuit during repair without damage to either connector or to the circuit. Further the method can be used to connect the connector to components other than the circuit board. Furthermore, the product as claimed can be made by another and materially different process, such as the product can be made without the use of the heat distributor. Number of openings can be provided in the socket to allow heat to be homogeneously transferred to the inner solder balls.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

4. If product claims, group I, claims 1-8 are elected, the applicant to elect a single specie with the claims directed to that specie. Group I of this application contains claims directed to the following patentably distinct species of the claimed invention:

Specie I	Figure 5 (heat distributor as shown in detail in figure 6).
Specie II	distributor as shown in detail in figure 9.
Specie III	distributor as shown in detail in figure 11.
Specie IV	distributor as shown in detail in figure 12.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. During a telephone conversation with Andrew Cheng on September 4, 2002 a provisional election was made without traverse to prosecute the invention of group I, a heat distributor, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claim 9 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Further from group I, claims 1-8, a specie reading on figure 5 is elected with claims 1-6 reading on the figure. As the claim 3 and 4 are not reading on figure 5, both the claims are withdrawn from the consideration. (Claim 3 reads on figure 12 and claim 4 reads on figure 9), but claims 7 and 8 are showing the use of heat distributor of the elected specie; both the claims 7 and 8 are examined for the patentability.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,2 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosed prior art, figure 3 and 4, hereafter art34, in view of Hayashi et al., US Patent 5,369,301, hereafter Hayashi.

Regarding claim 1, 7 and 8, art34 discloses a circuit board with conductive traces formed there on; an electrical connector comprising an insulation portion and conductive members retained in the insulation portion, each conductive member comprising a tail section corresponding to one of the conductive traces of the circuit board; soldering pre-forms arranged between the conductive traces and the tail sections of the conductive members; except

a heat distributor attached to the connector and comprising conductive pins thermally engaging the conductive members of the connector so as to uniformly transfer heat to / from the soldering pre-forms. However, heat distributors are known in the art for dissipating the heat from the system to safeguard the system from damage. Hayashi discloses one such heat distributor with base plate made of thermally conductive material, the base plate having a bottom face and an opposite top face; and a plurality of thermally conductive pins extending from the bottom face of the base plate (Hayashi figure 1a). Though, Hayashi does not disclose the pins arranged in accordance with the

cells and are insertable into the cells to physically engage the contact for transferring heat to the contacts and the soldering material, once the structure is known it can be modified to have the intended use for the specific system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the heat distributor for the apparent reason of melting the perform for the connection or for melting the solder for separating the connector for repair.

Regarding claim 2, Hayashi discloses the heat distributor made of aluminum, which is a metal (Hayashi - column 5, line 40-50).

Regarding claim 5 and 6, the applicant is claiming various sizes of the base plate of the distributor. However, the size of the base plate will be selected based on the device with which the distributor to be used and can be designed suitably. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the size of the base of the heat distributor suitably for the device with which it is to be used in order to satisfactory dissipate the heat.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Auger, Feenstra, Masury and Smith et al., disclose heat sink with pins. Giacomel discloses heat sink with pins and fins.

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Clemens et al., Horng and Liang disclose heat sink with fins.

Lin et al., discloses a package socket system with heat sink.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

*Albert W. Paladini 9-23-02*

ibp  
September 19, 2002

ALBERT W. PALADINI  
PRIMARY EXAMINER

ALBERT W. PALADINI  
PRIMARY EXAMINER